Animal & Plant Health Agency

Veterinary Medicines Directorate

Food Standards Agency
food.gov.uk

Guidance on best practice disposal of manure and slurry to reduce spread of antibiotic resistance to the environment

The spreading of manure provides a route by which bacteria can pass from livestock to the natural environment, food crops, other animals and people. Bacteria can develop resistance to antibiotics leading to decreased treatment options for the infections they cause.

Antibiotic resistance is a concern for human and animal health and attempts should be made to reduce the spread of resistant bacteria wherever possible. This document provides information on methods of disposal of manure which will help to reduce the survival and spread of resistant bacteria in the environment.

The Animal By-Products regulation (EC1069/2009) defines manure as '*any excrement and/or urine of farmed animals other than farmed fish, with or without litter*'. Article 9 of the same regulation classifies manure as a category 3 Animal By-product (ABP).

Solid and liquid waste may be handled differently so for the purpose of this document the term "manure" is used to refer to solid waste and "slurry" for liquid waste.

The Animal and Plant Health Agency (APHA) are responsible for enforcing the ABP regulation. In the event that APHA identifies a risk to human or animal health associated with manure or slurry, they may require specific control measures to be put in place. These are usually applied in relation to notifiable disease.

If APHA does not consider there to be a risk of spreading any serious, transmissible disease, manure can be applied to land without processing, (Authorisation B1), however the following options for manure management are recommended as best practice and should be adopted wherever possible to reduce the spread of antibiotic resistant bacteria.

See authorisation B1 at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/376076/apb-authorisations.pdf

Further guidance is provided by the Food Standards Agency (FSA) regarding the spread of waste on land used to grow ready to eat crops such as salad leaves

Recommended management options to reduce the spread of resistant bacteria

1. **Stacking and storage of manure:**

   Stacking of manure helps to reduce the number of bacteria, which could present a danger to public or animal health. It is recommended that manure is stacked for a period of 8 weeks.

   Once the stack is formed, no further manure should be added to the stack for the entire 8 week period. The manure stack should be sited so as to prevent livestock gaining access. If possible the stack should be sited on hard standing and covered once formed, to prevent access by wild-life (including birds).

   Following the 8 week period the manure can be spread on land.

2. **Composting of manure:**

   Manure can be sent for composting at designated facility. Composting is the biological degradation of organic material in the presence of air and water and the process will help to destroy bacteria harboured in the manure.

   There is no requirement to use an ABP approved composting plant for the disposal of manure (unlike other materials such as food waste)

3. **Storage of slurry**:

   If the farm has adequate storage capacity then it is recommended that the slurry is held for a period of 3 months prior to spreading on land. During this 3 month holding period no further slurry is to be added. This may be more feasible where two slurry tanks are available on farm, so that one can be filled whilst the second is used for storage.

4. **Anaerobic digestion of slurry and/or manure:**

   Both slurry and manure can be sent to an anaerobic digestion plant. Anaerobic digestion is the biological digestion of organic material in the absence of oxygen for the production and collection of biogas. The biogas, mainly methane, is collected to be used as a fuel. The remaining material (digestate) is then spread as fertiliser. The process destroys bacteria and is considered to be the best approach for reducing spread of bacteria to the environment.

   There is no requirement to use an ABP approved anaerobic digestion site for the disposal of manure (unlike other materials such as food waste)

General points to consider when spreading manure or slurry

It is good practice to stack solid manure until it is well rotted before use on land because fresh manure can harm some plants.

To reduce transmission of bacteria from manure to other animals, it is best practice to spread slurry or manure on arable land rather than pasture which will be grazed or cropped for animal feed.

If manure or slurry is applied to grazing land (or land cropped for feed production) then, in order to reduce the risk of spreading antibiotic resistant bacteria to livestock, it is recommended that grazing or cropping does not take place for a period of at least 8 weeks. The longer the manure is exposed to ultra-violet light, other weathering effects, natural decomposition and the effect of worms taking material into the soil the less the risk from potentially harmful micro-organisms will be.

Injecting slurry rather than top spreading reduces risk of spread of resistance by lowering the number of bacteria, reducing run-off and minimising wildlife exposure. (see below for ready to eat crops)

It is also advisable to take appropriate hygiene and bio-security precautions when spreading or handling manure, for example wearing outer clothing and waterproof footwear which can be cleaned and disinfected, wearing gloves, hand washing and ensuring that manure is not stored or treated anywhere near food crops which are eaten without cooking – e.g. salads.

Further guidance on environmental controls relating to land applications can be found at:

https://www.gov.uk/guidance/managing-sewage-sludge-slurry-and-silage

Transport requirements

Authorisation D10 allows transport of manure in covered leak-proof containers or vehicles between farms, or between farms and users of manure under conditions which prevent unacceptable risks to animal or public health.

See authorisation D10 at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/376076/apb-authorisations.pdf

Further guidance for applying slurry and/or manure to land used to grow ready to eat crops:

The FSA has produced guidelines to help growers manage farm manures to reduce the risks of microbiological contamination of ready to eat crops (i.e. fruits and vegetables likely to be eaten raw).

Solid manure and slurry that has been treated by the following methods can be applied to land used to grow ready to eat crops any time before drilling or planting:

- Stacked manure and slurry that has been batch-stored for a minimum period of 6 months prior to spreading,
- Composted solid manure or lime-treated slurry. The process should include a storage period to allow the compost/slurry to mature over a period of at least 3 months prior to spreading.

Solid manure and slurry which is untreated or which does not meet the specified treatment conditions should not be applied to land used to grow ready to eat crops within 12 months of harvest.

Manure or slurry applied to land used to grow ready to eat vegetables should be incorporated into the soil as soon as is practicable, as this will reduce the potential for direct crop contamination, as well as reducing odour and ammonia emissions.

FSA's 'Managing Farm Manures for Food Safety' guidance document is available at:

http://www.food.gov.uk/sites/default/files/multimedia/pdfs/manuresguidance.pdf

Red Tractor Assurance's 'Fresh Produce Scheme' standards include a 'Safe Applications to Land Matrix' which sets out scheme requirements for spreading manure, slurry and other organic fertilisers (including digestate) to land.

Digestate from slurry or manure processed in an anaerobic digestion plant that complies with BSi PAS 110 requirements may be applied to land used to grow ready to eat crops any time before drilling and planting.

Further details are available at:

http://assurance.redtractor.org.uk/resources/001/200/498/Fresh_Produce_standards_ONLINE.1.pdf

The British Standards Institute's Publicly Available Specification 110: Specification for Digestate is available at:

http://www.wrap.org.uk/content/bsi-pas-110-specification-digestate